

RF Shielded Rooms

Electromagnetically quiet environment for application testing



- SmartShield high performance, modular construction shielding system
- Flexible, modular design

The MVG RF Shielded Room is custom designed to suit the requirements of the customer. With extensive experience in designing, manufacturing and installing multiple shielded rooms around the world, MVG will work to develop the best fit solution for the clients needs, both technically and commercially.

The full design and manufacture of the shielded rooms is carried out by MVG which enables great flexibility in developing the best solution for the client's application. Bespoke dimensions and shapes can be incorporated to help with any specific customer needs. The shield panels can be formed or cut to any desired size so that the size of the final enclosure is infinitely variable and can be designed to make the best possible use of the available space within the parent building. The panels are shop, cut and marked to a set of general assembly drawings so that installation time is kept to a minimum.

SOLUTION FOR

Test sites requiring electromagnetically quiet environments in which to conduct testing for EMC, antenna, RF and microwave applications.

/ Main features

- Flexible modular design allows for customisable size and shape.
- Fully expandable and relocatable.
- Shield attenuation at 18 GHz of 80 dB for Sandwich Panels and 100 dB for Tray Panels, independently tested against EN50147-1 / MIL STD 285.
- Full turnkey solutions including test equipment and systems.
- Full in-house MVG project management, design, manufacture and installation.

/ Product configuration

Dimensions and shape to suit customer requirements

- Lengths/ Widths: 1.5 m to 20 m or more.
- Heights: 2.2 m to 10 m or more.

Standard Equipment

- Shielded doors from 0.9 m wide personnel doors to 5 m wide (or more) equipment doors. Includes optional manual or automatic ramps as required
- RF Power Line filters from 6 A to > 400 A, Single Phase, Three Phase and DC

Other elements:

- Feedthrough connectors and interfaces as required, including BNC, N-Type, SMA, fibre optic, ethernet, USB, etc
- Attenuvents
- Electrical distribution system including consumer unit, sockets and lighting
- CCTV systems
- Air conditioning systems
- Fire detection and suppression systems
- Internal linings, plasterboard or acoustic panels
- Shield attenuation testing

Applications

- EMC Testing (conducted emissions, conducted immunity)
- Shielded control and amplifier rooms
- RF development testing
- Electromagnetic pulse protection
- Electromagnetically secure environments
- Medical (audiology, EEG, etc)

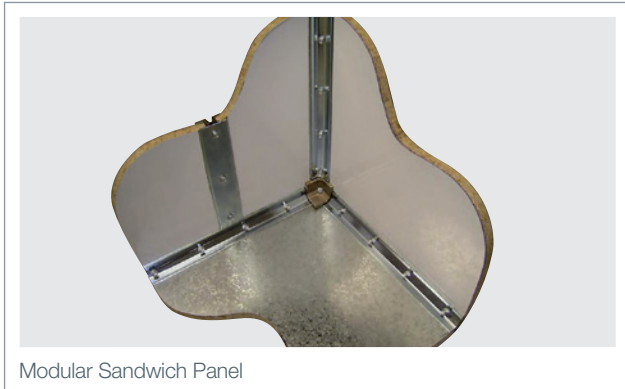
Smartshield Modular Sandwich System

The modular sandwich panel system consists of 19 mm thick panels formed from two "skins" of 0.5 mm thick galvanized steel laminated over a wood core. The panels are interconnected using "hat and batten" steel clamping sections which are fitted on site. The fixing screws (on 100 mm centres) are tightened to a pre-set torque figure. This design, in which all the fixings are accessible from within the chamber, thereby meaning that the chamber is constructed from the inside, allows for the chamber to be built up close to existing building walls.

If applicable, the walls and ceiling of the chamber are supported via rolled hollow sections steel supports. The columns and beams are sized such that they will withstand the additional loading imposed by the chamber walls and the loads from the chamber ceiling and, any anechoic materials (if fitted). The "hat and batten" clamping section is welded to the columns and beams at works to facilitate onsite installation of the panels.

Benefits:

- Modular Construction
- Aesthetically Pleasing
- Quick Installation
- Penetrable (up to 50%)



Modular Sandwich Panel

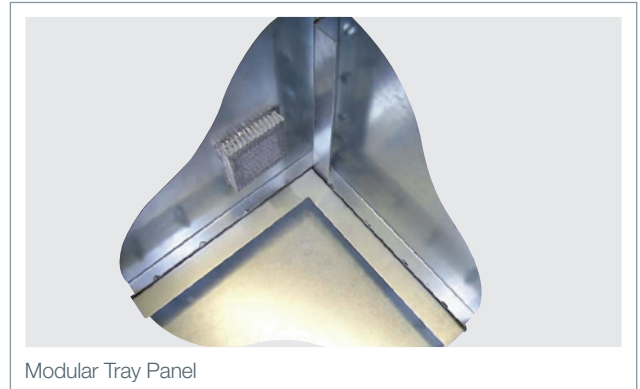
SmartShield Modular Tray System

The tray panels are preformed into "trays" using 2.0 mm thick zinc coated mild steel. The action of the zinc coating is twofold; it provides a finish which is corrosion resistant and protects the steel by a sacrificial action. It also has excellent electrical resistance properties ensuring that contact between the panels and the jointing mechanism is of the necessary high standard. The panels are bolted together at 100 mm centres with a solid tin plated copper clad steel gasket between each of the panel joints. This design ensures the highest shielding performance.

The shield panels are supported by an independent structural steelwork frame as required. The beams which support the chamber ceiling, incorporate special threaded drop rods which allow onsite adjustment of the beams to ensure maximum flatness. The columns have been sized such that they will withstand the additional loading imposed by the chamber walls and the loads from the chamber ceiling. The roof will take support from the free standing steel support frame. The roof spanning steelwork will be designed for the weight of the chamber and services.

Benefits:

- Modular Construction
- High Performance
- Quick Installation
- Easy Installation of Internal Linings



Modular Tray Panel

Due to the design of the modular sandwich and tray panel systems, the shielded enclosure can, if required, be easily dismantled and rebuilt by MVG in another location without any degradation in the shielding performance. The chamber is installed on top of a vapour barrier and isolating dielectric membrane.

Shielded attenuation performance for Sandwich Panel and Tray Panel Shielded Rooms

Frequency	Field	Shield Effectiveness (dB)	
		SANDWICH PANEL	TRAY PANEL
10 kHz	Magnetic	60	80
100 kHz	Magnetic	80	80
1 MHz	Electric	100	> 100
30 MHz	Electric	100	> 100
400 MHz	Plane	100	> 100
1 GHz	Plane	100	> 100
10 GHz	Microwave	80	> 100
18 GHz	Microwave	80	> 100
40 GHz	Microwave	80	> 100

Internal Linings

The internal walls of the shielded room can be left bare or they can be lined to provide a more aesthetically pleasing finish.

By default the Tray Panel room is constructed with the flanges of the tray internal and left exposed. This is adequate for the majority of uses but, the walls can also be lined with a skin of galvanised steel.

Alternatively, either type of room can be lined with decorative wall linings and/or a suspended ceiling. For the decorative wall linings this could be a plasterboard finish or an acoustic panels.



Shielded room lined with acoustic panels



Sandwich panel room with one wall left bare, one wall with plasterboard linings and a suspended ceiling

Shielded Doors

MVG shielded doors, manufactured to the same high quality as our shielded rooms, are an excellent match for any high performance shielding system. The doors are available in manual, semi- and fully automatic operation, for both swing and sliding door designs. See the Shielded Door datasheet for more information.



Example of double leaf manual swing door



Powered by



Contact your local sales representative for more information

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